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CORONA

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CENTRAL INTELLIGENCE AGENCY
WASHINGTON, D.C. 20505

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30 OCT 1969

MEMORANDUM FOR : Director, Satellite Operations Center

SUBJECT : CORONA System Coverage Capability

REFERENCE : A. Technical Memorandum No. 29,
25X1A [redacted] dated 15 October 1969

25X1A B. Technical Memorandum No. 39,
[redacted] dated 10 October 1969

1. Enclosed with this memorandum are two technical memoranda prepared by the Mission Analysis Branch bearing on the performance of the CORONA system. These memoranda have evolved out of discussions held with SOC personnel and several on-going Mission Analysis Branch study programs.

2. The Mission Analysis Branch of the Design and Analysis Division has been working with SOC personnel on a continuing basis to assess as carefully as possible the coverage capability of the CORONA system given the current launch schedule. Attached to this memorandum is Technical Memorandum No. 29 which is the most recent major document to come out of this study activity. To date, no study work aimed at assessing the coverage capability of the CORONA system has started with a given efficiency level measured in terms of forecast cloud thresholds and then computed the days on-orbit needed to satisfy a given coverage requirement. Now that the remainder of the CORONA launch schedule is relatively fixed, the important question is what can be done by way of meeting coverage objectives within the prescribed days on-orbit available. The attached memorandum demonstrates that there is a very real trade-off to be made between semi-annual and annual sizing and level of

NRO review(s) completed.



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associated coverage even within the established CORONA system days on-orbit constraint. These interrelationships are treated both from the point-of-view of maintaining semi-annual coverage requirements at some expense in film efficiency and from the point-of-view of adjusting system operating altitude.

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3. The Mission Analysis Branch is continuing to work this important problem of CORONA system utilization with the relevant SOC officers. If you have any specific questions which are not now being treated in this study area, [redacted] is ready at any time to discuss them with you.

4. Technical Memorandum No. 39 summarizes the CORONA ground resolution and frame area coverage data as a function of operating altitude. I especially call your attention to Figure 1 which diagrams ground resolution contours and shows comparative frame size for the J-3 CORONA system operated at 100 n.m. and 85 n.m. You will see quite clearly from this figure the difficulty of attaching a single resolution number to the CORONA system performance. If a single number must be used in describing J-3 performance, it has been OSP's practice to use seven feet ground resolution. Although a very small portion of the frame does achieve somewhat better performance than seven feet, this is not in our judgment a sufficiently large ground area to be claimed as characteristic of the overall system. Technical Memorandum No. 39 has been coordinated within OSP and should be taken as the Office's official position on resolution and area coverage for the J-3 system.

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[redacted]
Chief, Design and Analysis Division
Office of Special Projects

Att: As Stated

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